

POSITION STATEMENT IN SUPPORT OF THE REQUESTS BY THE CITIES OF OSHKOSH AND FOND DU LAC FOR DNR TO CONDUCT A STANDARDS ATTAINABILITY EVALUATION FOR THE UPPER FOX/LAKE WINNEBAGO BASIN

A. Introductory Statement

The current phosphorus water quality criterion for Lake Winnebago is 0.04 mg/l. DNR is currently engaged in a total maximum daily load (“TMDLs”) process that will assign new reduction requirements for all sources of phosphorus in the basin, with the goal to achieve the .04 mg/l criterion.

The development of a phosphorus based TMDL for the Upper Fox River poses a number of unique challenges, particularly given the role of Winnebago pool lakes. Lake Winnebago and the associated lakes (Butte des Morts, Winneconne and Poygan) are large shallow lakes with large amounts of legacy phosphorus. As indicated in this Position Statement, the preliminary analyses by consultants for the cities of Fond du Lac and Oshkosh also indicate that benthic release of phosphorus from sediments and the mass balance of phosphorus in the basin are substantial concerns. For these reasons, it is likely that achievement of the water quality standard of 0.04 mg/l is not attainable. If that is the case, then setting allocations based on that number does not make sense.

Therefore, before any allocations are made as part of the TMDL, the potential to attain the designated use and water quality criterion should be evaluated. This could be done as a formal use attainability analysis (UAA) or site specific criteria (SSC) analysis, or at a minimum, as a preliminary evaluation of data to determine whether the designated use and water quality criterion can be attained (the “Cities’ Suggested Approach”). Sound TMDL allocations must be based on sound data and science. At a minimum there should be a pause in the process to allow the preliminary data to be evaluated against the factors set forth in 40 CFR s. 131.10(g) and other relevant guidance, and to determine whether the designated use and water quality criterion can be attained before allocations are made.

The Cities’ Suggested Approach not only makes sense from a sound science and policy perspective, it is fully consistent with recent guidance from EPA and the DNR that establishing designated uses that accurately reflect the properties of a waterbody is crucial to achieving the goals of the Clean Water Act.

Against that background, the purpose of this Position Statement is to support the Cities’ Suggested Approach by providing:

- (1) The results of a preliminary technical analysis which indicates that Lake Winnebago has significant internal phosphorus loadings (including significant naturally occurring benthic and other sources), which will likely prevent the achievement of the current .04 mg/L criterion even if point and non-point sources are reasonably controlled.

- (2) Legal support for the Cities' Suggested Approach that a UAA or similar analysis should be conducted before any allocations are made in the TMDL process.

B. Preliminary Technical Analysis Supports the Request for DNR to Conduct the UAA for Lake Winnebago

1. A survey of available data for the basin strongly supports the proposition that there are very significant sources of phosphorus that are naturally occurring in the Lake Winnebago basin.

A limited literature review was conducted to identify the likely range in magnitude of benthic phosphorus loading sources affecting Lake Winnebago. This review concluded that benthic sediments contribute between 22,000 and 1,954,000 pounds per year of phosphorous to Lake Winnebago. The large range is due to the fact that the rate of phosphorous release from sediments is related to several inter-related factors, the most significant of which is temperature. The best professional estimate of the Cities' consultants, based on the literature search and experience, is that the lake currently receives about 1,000,000 pounds per year from the benthic sediments. Furthermore, previous evaluations of Lake Winnebago nutrient loading have concluded, "The total phosphorus (TP) profile in Lake Winnebago is a digenetic profile and does not reflect an increase in phosphorus load over the past 60 years" and "From early on, these lakes have probably always been eutrophic" (*Transport and Fate of Sediments and Nutrients in the Winnebago Pool System*, Gustin, August 1994). The benthic profile data support the conclusion that the Lake was eutrophic before the human induced increases in nutrient loading,

Lake Winnebago has long supported a fishery and both primary and secondary recreation. The evidence is that Lake Winnebago has never met the 0.04 mg/l phosphorous criterion. Further scientific study would likely justify a site specific phosphorous criterion somewhat higher than 0.04 mg/l under NR102.06 (7).

2. Preliminary mass balance analysis conducted from the available data in the basin supports the Cities' contention that upstream, historical, and/or naturally occurring sources of phosphorus will prohibit the attainment of the current phosphorus numerical criterion. A simplified mass balance was completed by quantifying the loads entering and exiting the lake using information currently available in the public domain (for 2009 through 2011). This included, among other sources, the United States Geological Survey (USGS) flow data, the Wisconsin Surface Water Integrated Monitoring System (SWIMS), the Lower Fox River TMDL study, the Public Service Commission (PSC) of Wisconsin reports for source (drinking) water supplies, and Discharge Monitoring Reports (DMRs) filed by point source dischargers. The results of this study demonstrate the Oshkosh WWTF and Fond du Lac WPCP represent approximately 2.9 percent and 2.2 percent of the influent phosphorus load to Lake Winnebago, respectively. Assuming the concentration in the lake effluent is equal to the concentration within the lake, the

average lake concentration ranges from approximately 0.06 to 0.1 mg/L. There was a net storage of phosphorus (i.e., sedimentation) in the lake during this time period.

The simple mass balance indicated that if both treatment facilities achieved a WQBEL of 0.04 mg/L, the total reduction in phosphorus load to the lake would be approximately 35,700 pounds per year. This would only reduce the current concentration in the lake by between 3.8 to 6.5 percent, representing only a few hundredths of a milligram per liter.

As part of this evaluation, the average flow of each input and output (rivers, wastewater treatment facilities, water withdrawals) was multiplied by its respective water quality criterion, proposed WQBEL, or source water concentration to determine the feasibility of reaching a phosphorus concentration of 0.04 mg/L in the lake. Even at the established water quality criteria and proposed WQBELs, over 500,000 pounds per year of phosphorus would still need to be removed to achieve a lake concentration of 0.04 mg/L. It is also important to note that groundwater flow into the lake is insignificant based on the water balance, which provides minimal opportunities for dilution. Therefore, it appears future phosphorus loads coming into the lake at respective river water quality criteria and proposed WQBELs are such that the lake would likely never reach 0.04 mg/L. The net storage (sedimentation) of phosphorus observed during the 2009 through 2011 time period is evidence of a buildup of phosphorus in the lake sediments that represents a potential long-term source of phosphorus, as discussed previously. Furthermore, given that Lake Winnebago was potentially eutrophic prior to European settlement, thus contributing to the amount of legacy phosphorus, it appears unlikely that the water quality criterion of 0.04 mg/L is attainable.

C. DNR's Own Technical Support Document for the Lower Fox TMDL Provides Further Support of the Cities Request for a UAA or SSC for Lake Winnebago

The following comment and response appears at p. 154 of the DNR's Technical Support Document for the establishment of the TMDL for the Lower Fox River basin:

"14. Comments: Please consider using a more equitable reduction (proportional to the loading) for Lake Winnebago (outlet) until the Wolf River and Upper Fox River TMDLs are complete.

Response: This was considered early in the TMDL development process. However, based on conversations with various researchers studying the Lake Winnebago system, a 40% TP reduction and a 48% TSS reduction are the most munificent reductions we can assume from Lake Winnebago, since naturally it is a eutrophic/hyper eutrophic lake. *Reducing the phosphorus concentration leaving the lake by greater than 40% at the outlet of the lake may not be possible given the part of the phosphorus input to Lake Winnebago likely originates from internal lake loading (released from bottom sediment)."*

(Emphasis added.)

The foregoing exchange is strong, additional technical support (provided by DNRs own expert) to support the Cities' request for the UAA or SSC to assess the impact of naturally occurring sources of phosphorus as an impediment to the attainment of the phosphorus numerical criterion for Lake Winnebago.

D. There is Strong Support for the Cities' Suggested Approach in EPA and DNR Guidance

Both the DNR and the EPA have recently stated that establishing designated uses that accurately reflect the properties of a waterbody is crucial to achieving the goals of the Clean Water Act. Recent pronouncements by EPA and DNR in guidance/preamble/scoping statements provide ample support for the Cities' request that DNR perform a UAA or SSC for Lake Winnebago prior to establishing TMDL allocations.

1. EPA Guidance

In its guidance on designated uses the EPA states,

“Setting water quality goals through assigning ‘designated uses’ is best viewed as a process for states and tribes to review and revise over time rather than as a one-time exercise.” “The overall success of pollution control efforts depends on a reliable set of underlying designated uses in water quality standards.”

...

“[S]tates need[] to invest in putting in place more refined use designations along with differentiated criteria to protect those uses.”

...

“We believe that setting attainable water quality goals is important in stimulating action to improve water quality.

...

We do not believe that setting unattainable uses advances actions to improve water quality.”

...

“A process of setting incremental water goals through refined designated uses, that in turn advances progress toward an ultimate goal, can help us achieve our long term goals faster. One way to achieve efficiency in the process of assigning attainable designated uses is to better synchronize UAA analyses with the TMDL process.”

...

“In practice, UAAs may be conducted prior to, concurrently with, or after the development and implementation of a TMDL. In many cases, the data generated during a TMDL could well serve as the foundation for deciding whether a change in a use is warranted.” See <http://water.epa.gov/scitech/swguidance/standards/uses/uaa/info.cfm>

2. EPA Statements in Federal Register Preamble

On September 4, 2013, EPA announced a proposed rule that would change the federal water quality standards regulation in 40 CFR Part 131. In the preamble accompanying these proposed rule changes, EPA made a number of statements about the use of UAA that support the Cities’ request in this case:

“...states and tribes have broad discretion to determine the appropriate level of specificity to use in identifying and defining designated uses, and nothing in this proposal is intended to narrow that discretion. To further clarify this in rule text, the proposal would add the following language to 131.10(g): “To meet this requirement, States may, at their discretion, utilize their current use categories or subcategories, develop new use categories or subcategories, or adopt another use which may include a location-specific use”

....

“3. Designate a location-specific use and adopt criteria to protect that use: A state or tribe may determine that a use is unattainable for one particular parameter (e.g. altered pH due to highly mineralized geology, or a combined sewer overflow (CSO)-impacted use) or suite of parameters in specific locations. In such situations, the state or tribe may choose to adopt a use that more accurately reflects the location-specific expectations. . . . The concept of HAU (highest attainable use) should not be confused with “site-specific criteria.” A site-specific criterion is designed to protect the current unchanged designated use, but the criterion value may be different from the statewide or otherwise applicable criterion because it is tailored to account for site-specific conditions that may cause a given chemical concentration to have a different effect on one site than on another.”

See 78 Fed. Reg.54518, 54523-24 (September 4, 2013)

3. DNR Guidance

Similarly, in its recent scoping statement for a proposed rule package to establish procedures for reviewing water quality standards for waterbodies in Wisconsin, the DNR stated,

“The objectives of the proposed rule modifications are to bring outdated Designated Use categories and subcategories into alignment with current scientific understanding of waterbody types and their aquatic communities, and to correspondingly adjust water quality criteria based on these Uses. These changes are needed in order to a) perform accurate and scientifically-defensible assessment of waterbody quality, b) ensure

that permittees are not required to meet over-or under-protective discharge limits, and c) match appropriate water quality management tools (best management practices, etc.) with the correct uses of a waterbody.”

...

“The Clean Water Act specifies that an opportunity to update Designated Uses for individual waterbodies should be made available every three years, though this has not been done since the 1980’s. Wisconsin has 88,000 stream miles and 15,000 lakes, and the outdated code, “defaults” the vast majority of these waters to an unspecified fish and aquatic life Use. Much more is now known about these waters, and reclassifications need to be made so that our permitting programs are based on the receiving waters’ actual Uses, and are not potentially over-or under-protective.”

...

“[i]f updates to the Designated Use categories/subcategories and their corresponding Water Quality Criteria are not made, waterbodies will continue to be assessed based on outdated and inaccurate information. Because Designated Uses are the foundation of many of WDNR’s water quality programs, this leads to inaccurate assessments, *inappropriate target goals for Total Maximum Daily Load analyses, and over-or under- protective discharge limits for permittees with WPDES permits.*” (Emphasis added)

See Statement of Scope for proposing rule changes to Chapters NR 102, 104 and 105 SS 002-14 (DNR# WY-25-13) (December 19, 2013).

All of these EPA and DNR statements contained in relevant guidance/support documents provide strong support for the Cities’ Suggested Approach to assess the achievability of the 0.04 mg/l criterion for Lake Winnebago before imposing TMDL allocations.

E. If an Attainability Evaluation Supports a Modification of the Current Criterion, the DNR Should Establish a Site Specific Criterion for Lake Winnebago Before it establishes the TMDLs for the Upper Fox/Lake Winnebago Basin

To determine whether and to what extent it is appropriate to refine the designated use and associated phosphorus criteria for Lake Winnebago, the DNR should follow the Cities’ Suggested Approach. Should the results of this suggested assessment process indicate that the DNR needs to change the existing use and associated phosphorus criteria for Lake Winnebago, Oshkosh and Fond du Lac would strongly recommend that such change be made prior to establishing allocations through the TMDL.¹ The evidence the DNR compiles during the suggested assessment process could be used subsequently in the Upper Fox/Wolf TMDL.

¹ The DNR should replace the current designated use with the Highest Attainable Use (HAU). The EPA stated in its recent proposed amendments to the federal Water Quality Standards Rule that it intends to require all states seeking

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F. Conclusion

Based upon the preliminary technical analysis as well as the applicable federal and state guidance/support documents, The DNR cannot formulate an accurate, defensible, or achievable TMDL for the Upper Fox River basin without first reevaluating the attainability of Lake Winnebago's designated use and water quality criterion through one or more of the methods described in the Cities' Suggested Approach. Much of the data required for such an assessment is already being gathered as part of the TMDL. However, DNR should ensure that the appropriate data such as several deeper, dated sediment core samples and laboratory estimations of sediment release under different conditions are gathered and evaluated before the allocation phase of the TMDL is undertaken.

In the absence of conducting such data gathering as part of the assessment process outlined in this Position Statement, the resulting TMDL will be unlikely to achieve its purpose, and it may subject the Cities of Oshkosh and Fond du Lac to incurring exorbitant costs for engineered solutions which, although limiting their respective phosphorus discharges, will never achieve the current numerical goal for phosphorus in Lake Winnebago. Utilizing one or more of the assessment processes described in the Cities' Suggested Approach as well as the data gathering described above will provide adequate assurance that such unjustified costs (which ultimately will be borne by ratepayer citizens) are not imposed on point sources in the basin.

Dated this 30th day of June, 2014



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to amend current designated uses to replace them with the Highest Attainable Use (HAU) for a given waterbody. Determining the HAU requires consideration of the same factors the DNR considers under a UAA. In addition, to determine the HAU, the DNR must also consider the effectiveness of BMPs, the efficacy of treatment technology, and predictive water quality models.